



TECHNICAL SUPPORT DOCUMENT

FOR

AMENDMENTS TO COMAR 26.09

MD CO₂ Budget Trading Program

JULY 26, 2013

PREPARED BY:

MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard
Baltimore Maryland 21230

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I. INTRODUCTION

The purpose of this action is to amend regulations under Code of Maryland Regulations (COMAR) 26.09, Maryland CO₂ Budget Trading Program, with program improvements developed in conjunction with other participating states during the 2012 Comprehensive Regional Greenhouse Gas Initiative (RGGI) Program Review.

The Regional Greenhouse Gas Initiative

The Maryland Healthy Air Act was signed into law on April 6, 2006 and required Maryland to join the Regional Greenhouse Gas Initiative (RGGI) by July 2007. The Department subsequently adopted COMAR 26.09.01 to .03, implementing the “Maryland CO₂ Budget Trading Program”, which became effective on July 17, 2008. COMAR 26.09.04 (“Auctions”) became effective as a permanent regulation on August 25, 2008.

RGGI is comprised of nine states in the Northeast and Mid-Atlantic regions. These states adopted market-based carbon dioxide (CO₂) cap and trade programs designed to reduce emissions of CO₂, a greenhouse gas, from fossil fuel-fired electricity generators with a nameplate capacity of 25 megawatts or greater. RGGI currently is comprised of Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont, and Maryland. New Jersey discontinued participation after the end of the first compliance period, 2009-2011. Participating RGGI states each require electricity generators to have acquired, through regional auction or secondary market transactions, one CO₂ allowance for every ton of CO₂ emitted over a three-year compliance period. Auction proceeds fund a number of state programs, including energy efficiency programs that result in lower CO₂ emissions through reduced electricity demand. Further, auction proceeds fund renewable energy projects which reduce the amount of CO₂ emissions generated by fossil-fueled electricity generators.

The RGGI program has several unique features unlike other cap and trade programs in the U.S. The allowances are controlled by the states and can be allocated or sold to sources. Most states have opted to auction the allowances to sources through quarterly auctions. Proceeds from the auctions are used to fund energy efficiency programs to reduce demand for electricity and provide a means to lower CO₂ emissions. The states conducted the first quarterly regional auction in September 2008, and the program officially began in January 2009.

RGGI set a cap of 188,076,976 tons of CO₂ emissions for the region, based on average 2000 to 2002 CO₂ emissions from eligible electricity generators subject to the program. Maryland receives 37,503,983 CO₂ allowances each year through 2013. Under the proposed amendments, Maryland will receive 20,360,944 CO₂ allowances in 2014. Between 2015 and 2020, Maryland will annually receive 2 ½ percent fewer CO₂ allowances as the RGGI cap reduces by 10 percent during that time. Maryland has set aside 7,388,491 allowances in 4 different set aside accounts to account for special needs or programs.

Year	2014	2015	2016	2017	2018	2019	2020
Allowances	20,360,944	19,844,420	19,340,810	18,849,790	18,371,045	17,904,269	17,449,162

RGGI has completed its first control period, 2009-2011. The regional auctions generated almost a billion dollars in revenue for the states during this time. These funds were used to provide funding for energy efficiency and renewable energy programs, rebates to ratepayers, bill payment for low income ratepayers and general fund relief.

RGGI is composed of individual CO₂ Budget Trading Programs in each RGGI participating state. Each participating state's CO₂ Budget Trading Program is based on the 2008 RGGI Model Rule, which was developed to provide guidance to states as they implemented the RGGI program. RGGI participating states have completed a 2012 Program Review, which is a comprehensive evaluation of program successes, program impacts, the potential for additional reductions, imports and emissions leakage, and offsets.

Amendments to the Model Rule were developed by the RGGI state staff as part of the Program Review. This effort was supported by an extensive regional stakeholder process that engaged the regulated community, environmental non-profits, and other organizations with technical expertise in the design of cap-and-trade programs. Appendix A contains a list of stakeholder meetings regarding the 2012 Comprehensive Review.

Carbon dioxide emissions in the RGGI region have declined substantially. One factor contributing to the decrease in regional emissions has been a shift in use of natural gas over coal and oil for fuel at electricity generators due to a significant decrease in the price of natural gas. Another factor is an economic downturn that began in late 2008. As electric generating companies acquired CO₂ allowances equal to their emissions, some CO₂ allowances offered at the regional auctions were not sold. Maryland regulations allow these allowances to be offered for sale at a subsequent auction or to be retired. With demand for allowances through the auction smaller than the amount of allowances offered, the participating states held the unsold allowances until the end of the first compliance period. This allowed the states to determine whether demand existed for the allowances or whether retirement would provide the best environmental benefit. The states determined that the unsold allowances should be retired and retired 102,631,137 allowances. Maryland retired 19,794,971 unsold allowances.

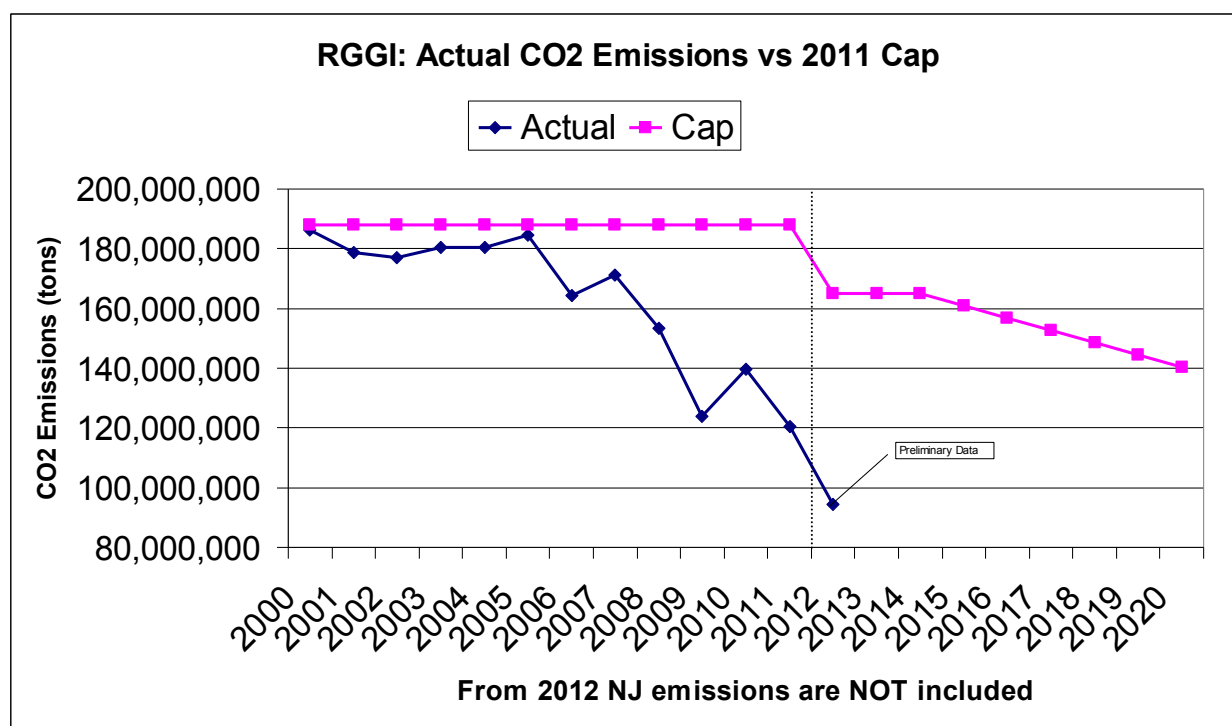
The Regional Greenhouse Gas Initiative is included in the Greenhouse Gas Reduction Plan and provides funding for many of the efficiency programs implemented by the Maryland Energy Administration such as Empower Maryland. CO₂ emission reductions from these proposed amendments will provide 3.6 million metric tons of additional reductions for the Greenhouse Gas Reduction Act Plan.

II. RGGI 2012 COMPREHENSIVE PROGRAM REVIEW

The Cap

The RGGI cap was first established during the period from 2005-2007. The participating states decided upon a generation-based program rather than a consumption-based program because the states had authority to control electric generating sources within their jurisdiction. The initial cap was based on the average of 2000-2002 CO₂ emissions and the initial cap was set at 188,076,976 short tons of CO₂. After a stabilization period, the cap would be reduced starting in

2015 by 2.5% each year until 2018 for a 10% reduction. When New Jersey left the program after 2011, the end of the first control period, the cap was adjusted to 165,184,246 short tons of CO₂ to remove New Jersey's emissions.

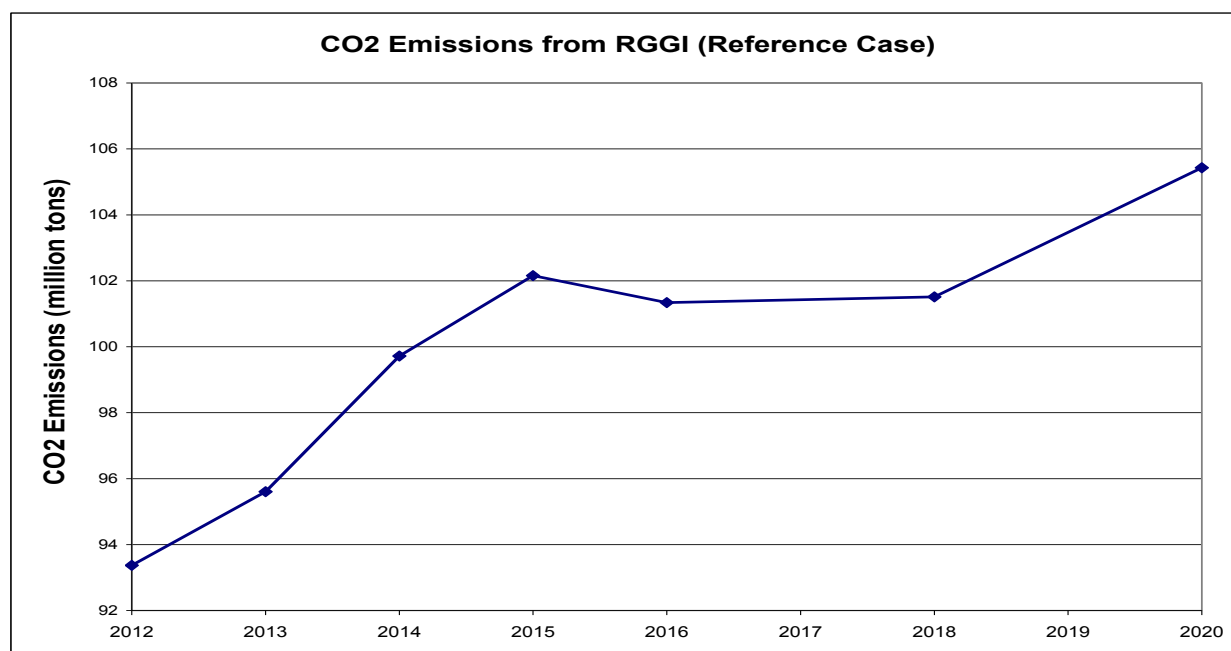


The RGGI program started in 2009. The figure above shows the actual CO₂ emissions from the participating states and the first control period cap. As the states tracked emissions to evaluate reductions, the downward trend in emissions became evident. The drop in allowance sales at the regional auctions also signaled an oversupply of allowances. The participating states elected to revise the cap as part of the 2012 Comprehensive Program Review. During the review, the states considered a number of potential caps in short tons of CO₂: 106 million tons (106M), 97 million tons (97M), and 91 million tons (91M). The 106M cap was based on the annual average of emissions from the first control period. The 97M cap was based on the projected reference case emissions for 2014, and the 91M cap was based on actual 2012 estimated emissions.

The participating states used the Integrated Planning Model (IPM) to model emissions, future demand, new environmental requirements, changing fuel prices, etc. to predict possible emission reductions, allowance prices and demand for allowances at each cap level against a business as usual reference case. A number of cap levels from 120 million– 91 million short tons of CO₂ were investigated with the focus moving to lower levels as emissions continued to trend downward.

The participating states developed a reference case scenario, carefully considering new generation sources on the way, projections of future demand, announced retirements, new regulatory requirements, and current and expected fuel prices.

The results of the modeling show that at the 106M, the RGGI cap is not binding or is not binding well into the future. It does not create a scarcity of allowances and allows sources to operate without considering controls. Also, allowance prices remain at the reserve price, and reductions, if any, are small compared to the reference case. For the 97M and 91M cases, the cap becomes binding.



The selection of a cap at the 91 million short tons of CO₂ (91M) level was a difficult but well thought-out decision. Based on current emissions and projected growth, the 91M will put downward pressure on carbon emissions, but not in a radical way. The selected cap received support from a wide variety stakeholders, even many generators.

The Cost Containment Reserve (CCR)

The participating states recognized the possibility of price volatility for allowances. To provide flexibility to affected sources, the participating states developed an offset program and allowed sources to use offset allowances for up to 3.3% of their compliance obligation. Additionally, if the cost of allowances exceeded certain prices and remained at those levels for extended periods of time, affected sources could purchase greater percentages of offsets in lieu of purchasing higher priced allowances. Under the condition of even higher prices, international offsets could be purchased instead of allowances. The low price for CO₂ allowances during the first control period did not encourage the development of a RGGI offset market, as the cost of sequestering a ton of CO₂ through offsets is more in the range of \$7-\$12 or more as opposed to the \$1.98 cost of a RGGI allowance. A second shortcoming to mitigating price volatility through an offset program is the length of time that may be necessary to achieve price relief. A faster, more effective method of reducing price volatility was needed.

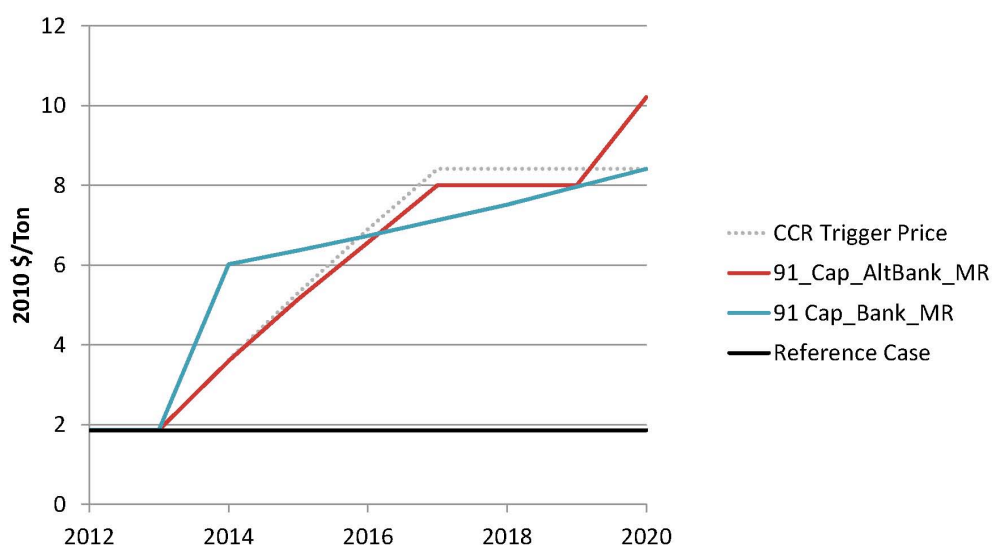
During program review, the participating states explored the option of adding additional allowances to the allocated supply to reduce price increases through a cost containment reserve.

If the cost or clearing price of allowances in an auction reaches the trigger level, additional allowances are added to the auction, both increasing the supply and lowering the price. These allowances are in addition to the 91 million allowances in the cap, with 5 million allowances available for the CCR in 2014 and ten million allowances per year available after 2014. In subsequent years, the CCR will be replenished as needed to maintain the withdrawal limit. Modeling has predicted that this option will be used sparingly, but will lower prices. The participating states feel this option will be more effective at lowering allowance prices than allowing increased amounts of offsets, which will continue to operate as a separate program.

The CCR is more effective when allowances are added to the cap than when the CCR is included under the cap. If the CCR is triggered, the added allowances do raise the cap for that year but only for that year. The following year the cap returns to its adopted regulatory limit for that year. Emissions from electric generating units do fluctuate due to differences in demand and weather conditions. In an extremely hot or cold year, emissions fluctuations could increase demand for allowances greatly producing price spikes. The CCR helps to lower extreme price spikes.

2013 SCENARIO ANALYSIS

RGGI Model Rule Scenario Results ***Allowance Prices 91_Cap_MR Cases***



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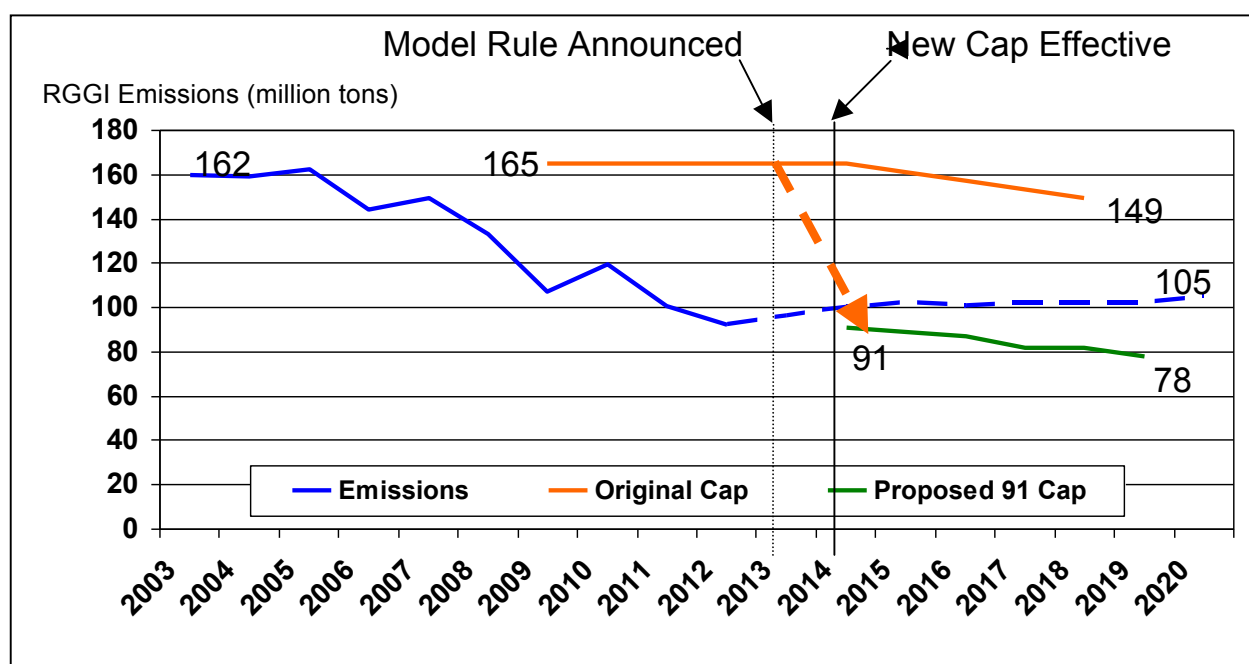
The CCR allowances would be made available immediately in any auction in which demand for allowances at prices above the CCR trigger price exceeds the supply of allowances offered for sale in that auction prior to the addition of any CCR allowances. If the CCR is triggered, the

CCR allowances will only be sold at or above the CCR trigger price. The CCR Trigger Prices are \$4 in 2014, \$6 in 2015, \$8 in 2016, and \$10 in 2017. Each year after 2017, the CCR trigger price will increase by 2.5%. Allowances from the CCR would be fully fungible.

The Adjustments for Banked Allowances

RGGI allows sources to bank allowances in two ways. Sources can use current vintage allowances to satisfy future compliance obligations. The participating states have also auctioned future vintage allowances in the past. These allowances often sell at prices lower than they would in the future.

The significant changes proposed through the 2012 Comprehensive Program Review necessitate regulatory changes for all states and legislative changes for some. For most participating states these changes will take almost a year to complete and longer for others. The lag between the announcement of the proposed changes and the adoption of the regulatory changes needed to implement the changes allows regulated sources and speculators the opportunity to purchase large quantities of allowances at minimal prices. The results of Auction 19, and later Auction 20, demonstrate sources and speculators alike will take advantage of this situation. Demand for allowances was 2.5 times the supply and the allowance price rose above the reserve price for the first time in almost three years. The graph below illustrates the differences in allowances offered, current emissions and the proposed cap. Close to 115 million allowances could be stockpiled during this interim time and the allowances utilized to offset the reductions in the cap. To buffer the proposed new cap against such activity, the participating states will calculate the surplus allowances held by the private sector and reduce the sale of allowances to use up the surplus allowances over a seven year period.



States are addressing the potential large bank of allowances through adjusting how many allowances will be sold between now and 2020. The private bank of allowances is addressed through two distinct adjustments to the state budget. The First Control Period Interim Adjustment for Banked Allowances (first adjustment), adjusts the budget for 100 percent of the first control period private bank of allowances (vintages 2009, 2010, & 2011) held by market participants as of the end of the first control period, that are in addition to the total quantity of first control period emissions. The first adjustment timing and algorithm is spelled out in the regulations and is made over the 7 year period 2014-2020.

The Second Control Period Interim Adjustment for Banked Allowances (second adjustment), adjusts the budget for 100 percent of the 2012 and 2013 vintage allowances held by market participants as of the end of 2013, that are in addition to the total quantity of 2012 and 2013 emissions. The second adjustment timing and algorithm is spelled out in the regulations and is made over the 6 year period 2015-2020 after the actual size of the 2012 and 2013 vintage private bank is determined. This change helps to create a binding cap in light of the opportunity sources have to accumulate low cost allowances while states implement the regulatory changes needed to establish the lower cap.

Year	Base Budget	First Comp Period Adjustment	2012-2013 Adjustment	Net Budget
2014	20,360,944	1,524,434	0	18,836,510
2015	19,844,420	1,524,434	2,573,158	15,746,829
2016	19,340,810	1,524,434	2,573,158	15,243,218
2017	18,849,790	1,524,434	2,573,158	14,752,198
2018	18,371,045	1,524,434	2,573,158	14,273,453
2019	17,904,269	1,524,434	2,573,158	13,806,677
2020	17,449,162	1,524,434	2,573,158	13,351,570

Reserve Price

The regulations simplify the reserve price calculation. The reserve price is set at \$2.00 in 2014 and increases by 2.5 percent each year thereafter. The Consumer Price Index is eliminated as well as the current market reserve price. The Long Term Contract Price is defined in the same manner as the reserve price.

Interim Control Periods

The participating states provided for a three year compliance period before sources were expected to surrender allowances equal to their CO₂ emissions under the original program concepts. The three year period allowed flexibility for the sources to budget for the purchase of allowances in case of unforeseen high demand periods due to weather extremes. The concept has worked well but through the review, the participating states decided to add interim compliance periods.

The regulations create “interim control periods” defined as each of the first two calendar years of each three-year control period and “Excess Interim Emissions,” defined as any emissions (multiplied by 0.50) over the amount of allowances held at the end of each Interim Control Period. The regulations include a new general requirement for sources to hold allowances to cover 50% of emissions for each Interim Control Period, subject to the existing true-up process and a March 1 deadline. The final compliance true-up at the end of the three-year control period will continue to require sources to hold allowances to cover 100% of the emissions for the three years. The allowances already deducted to meet each of the two annual Interim Control Period obligations will be subtracted from the three-year compliance true-up obligation.

Each ton of Excess Interim Emissions will be considered a violation, subject to the ordinary existing enforcement provisions of the relevant agency on an annual basis. There will *not* be a “treble damages” provision for Excess Interim Emissions. The existing “treble damages” provision, for any excess emissions at the end of the three-year control period, will remain unchanged.

The participating states deleted existing triggers, “market settling period”, and other regulatory terms related to the potential to extend the control period to four years. These changes simplify the program and ensure that sources are keeping up with their compliance obligations.

Offset Trigger Mechanisms

The regulations delete the existing offset price triggers that raise the allowable percentage of offsets and that allow the use of international CO₂ emission credit retirements. The allowable offset percentage would remain at 3.3%, and only those offset credits that satisfy all regulatory requirements for a specific project category (including any new categories added) may be used for compliance. These changes are consistent with the decision to add a CCR mechanism and address the need for cost control in a much more transparent and predictable way. These changes help to dampen price volatility through increasing supply when prices are rising quickly.

Forestry Offset

The regulations contain language that provides a new offset category known as “Sequestration of carbon due to reforestation, improved forest management or avoided conversion” that States may adopt in lieu of the existing Afforestation category.

A RGGI U.S. Forests Offset Protocol has been developed, based mainly on the California Air Resources Board (CARB) U.S. Forests Offset Protocol, to include:

- Improved Forest Management;
- Avoided Conversion; and
- Reforestation (which would replace the existing RGGI Afforestation category type).

Wherever possible, the Model Rule intentionally stays consistent with the (CARB) to leverage work done by CARB and the Climate Action Reserve (CAR), because the CARB program is expected to support a domestic supply of these offsets, and to provide consistency.

The RGGI protocol uses a discounting approach, instead of the buffer account approach used by CARB, to address reversals and ensure permanence. Forestry projects that have generated credits in a voluntary offset program would be permitted to transfer to the RGGI program, assuming that they meet all other RGGI requirements and there is no double-counting. The general additionality requirements for existing RGGI offset categories have not changed. This protocol provides a better option for offsets in Maryland.

III. ECONOMIC ANALYSIS

Regional Economic Models Incorporated (REMI)

The participating states conducted economic analysis utilizing the REMI model to determine the overall economic impact on the RGGI region from these changes as shown in Appendix C. The lowered cap will generate additional funds from the sale of allowances. It is estimated that an additional \$810 million per year will be raised from the sale of the allowances and that MEA will be responsible for the administration of those additional revenues.

These funds will be reinvested into the Maryland economy through energy efficiency, climate change and renewable energy initiatives. Furthermore, the funds will also be used for direct bill pay of low income households. The analyses showed that these changes will result in a positive impact to the economy. As a result of the 91M cap, a net average of roughly 269 jobs will be generated and maintained in the Maryland economy each year. Over the period of 2012-2020 there will be an additional \$155.2 million in Net State Product and \$217.2 million in real personal income¹.

Bill Impact Analysis

The participating states conducted economic analysis utilizing the REMI model and Bill Impact analyses shown in Appendix D to determine the effect on electricity prices. These changes will have minimal effect on electricity prices. The monthly residential electricity bill is expected to decrease an average of \$1.24 dollars for the reporting period (from lowering the cap to 91 million) when compared to the 165 million cap. However, the average commercial bill will increase by 0.3% annually, and the average industrial energy bill will increase by 0.4% annually. (Appendix D includes the complete Maryland specific bill impacts).

¹ The economic impacts of lowering the cap to 91 million is provided by RGGI Inc. The estimated benefits are generated by accounting for the full life cycle benefits of the energy efficiency improvements and investments into renewable energy. The total net benefits are then calculated for the years 2012 through 2020.